DATA TRAFFIC AND BANDWIDTH ANALYSIS

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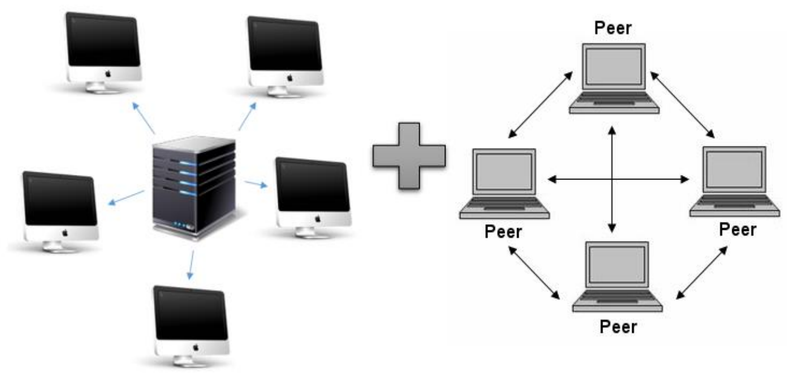
ABSTRACT

This paper tries to address current data and bandwidth problems by re-organizing few limitations of server-client and peer to peer communication model so that a hybrid model would solve issues related to both of them. The current infrastructure has some issues in catching up with the vastly increasing speeds and requirements of the clients. Following these trends, the existing infrastructure needs to be completely revamped in order to be successfully meeting the current requirements and also the requirements of the near future. Here arises a need to meet the current flow of demands while also buying time in order to get the new infrastructure in place. In order for that to happen, there exist some factors that can be manipulated so as to optimize the current system to meet the demands and provide a time buffer. Here these factors are researched upon and conclusions are drawn from this research so as to get the ways to manipulate and use these factors/resources in a correct manner for managing data traffic.

INTRODUCTION

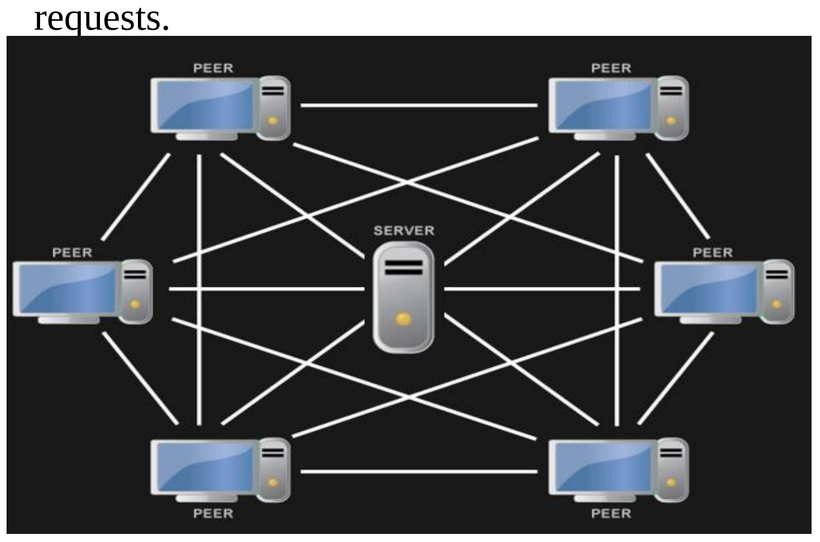
This increased potential for utilization of the internet and its related services has led to the number of users connected to keep growing on a daily basis. As this number grows so does the amount of data traversing the network, adding further strain on the existing infrastructure. Ever since its conception, the basic infrastructure of the internet has remained the same. This stagnation in infrastructure development has resulted in some serious drawbacks such as reduced speed and quality of connection, service provider uplink limitations, and uneven distribution of services to consumers, among others. While an increase in overall bandwidth would be an ideal solution, it involves a serious cost factor in order to overhaul the current network set-up and even then it would not be an effective usage of the available resources. This paper expounds on several methods such as dynamic speed distribution and dynamic band width allocation which may be implemented in order to address some of the issues mentioned above and in the long run provide a means to increase effective utilization of the current system.

The speed of a network connection is nowadays a highly coveted resource. It has unanimously become the deciding factor for selecting between service providers. Although the term speed is used quite freely, and is often confused with bandwidth, it can be simply defined as the maximum (or optimal in most cases) flow rate of date through the connection. In other words it literally means data rate (bits per second). Since the dawn of the commercial internet around thirty five years ago, it has grown in leaps and bounds in every one of its aspects. The following methods can be implemented to boost speeds in the suggested network model.



1. *Hybrid Peer to Peer Communication Model*

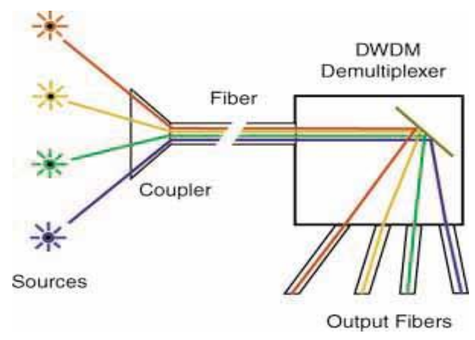
This paper proposes to establish a next generation network structure which enables peer to peer file transfer and brings more convenience to customers by enabling them to use their true internet service potential. This network model should be able to notify the server about the file being requested. Server should assign this request to all other users seeking same content. Now the file is divided into pieces and then shared to each client requesting it. However all clients will then also interact with each other uploading their piece of file received as a natural gesture when both upload and download is justified. When content with more demand is requested on a client server model all servers have to increase their speed or boost their bandwidth. However in this scenario even for a high number of requesters, the clients could ideally share their part of file and free up the server for new incoming requests.



2. *Multiplexing related Data*

We do Know that the Multiplexing Techniques can be used to effectively transmit the data and also that this is a root in managing the data traffic as all the data flows through the transmission medium and multiplexing manages the data flow.

Here the normally similar data are grouped together and also the data transmission takes place by combining different bit rate transmission and incorporating them in to a single bandwidth. So as to share the medium effectively. A flexible view of the existing multiplexing mechanisms are taken into account and also compared and combined to find a solution.



3. *Dynamic Bandwidth Allocation*

The bandwidth can be imagined like a freeway. The higher bandwidth you have more lanes you have for data to drive through. Usually a higher bandwidth means high speed. The bandwidth even if promising high content volume in adequate speed is always not able to provide as promised. Dynamic bandwidth allocation algorithms have been proposed where the allocated bandwidth will be divided according to priorities. These priorities are divided based upon the Quality of service which can increase the effectiveness of bandwidth by prioritizing among and delivering time sensitive packets first. Three priority levels have been used for classification(High, Medium and Low).The idea is to distribute bandwidth fairly between users so each one will be having a reliable connection

EXPECTED RESULT

By implementing these strategies, we hope to achieve an improvement in user network utilization and even distribution of higher data rates.

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